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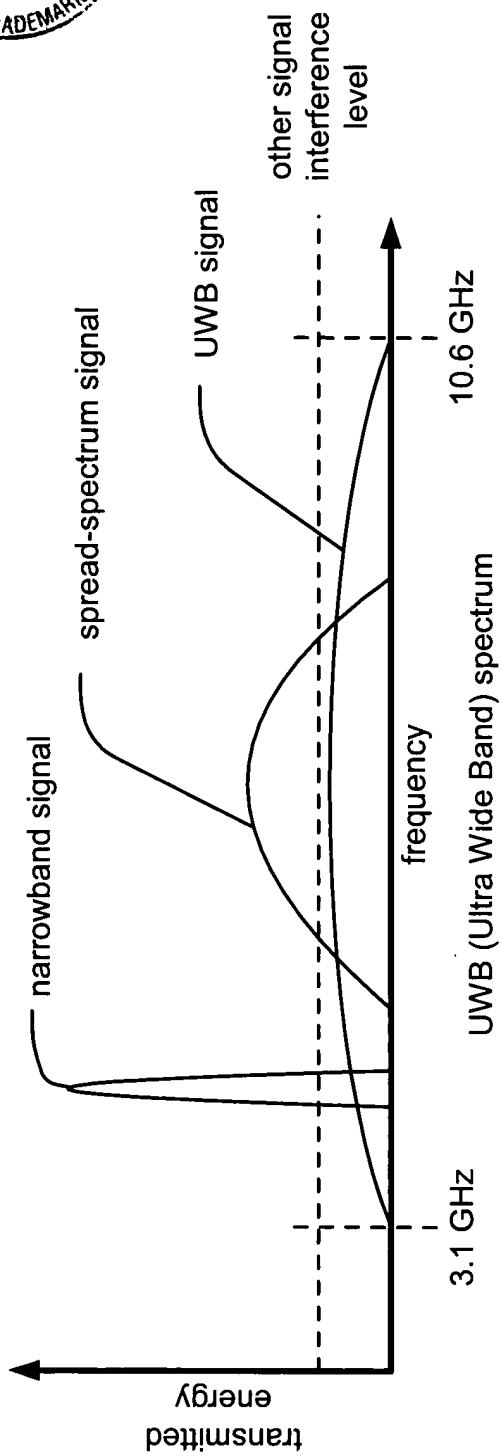



**Fig. 1A**

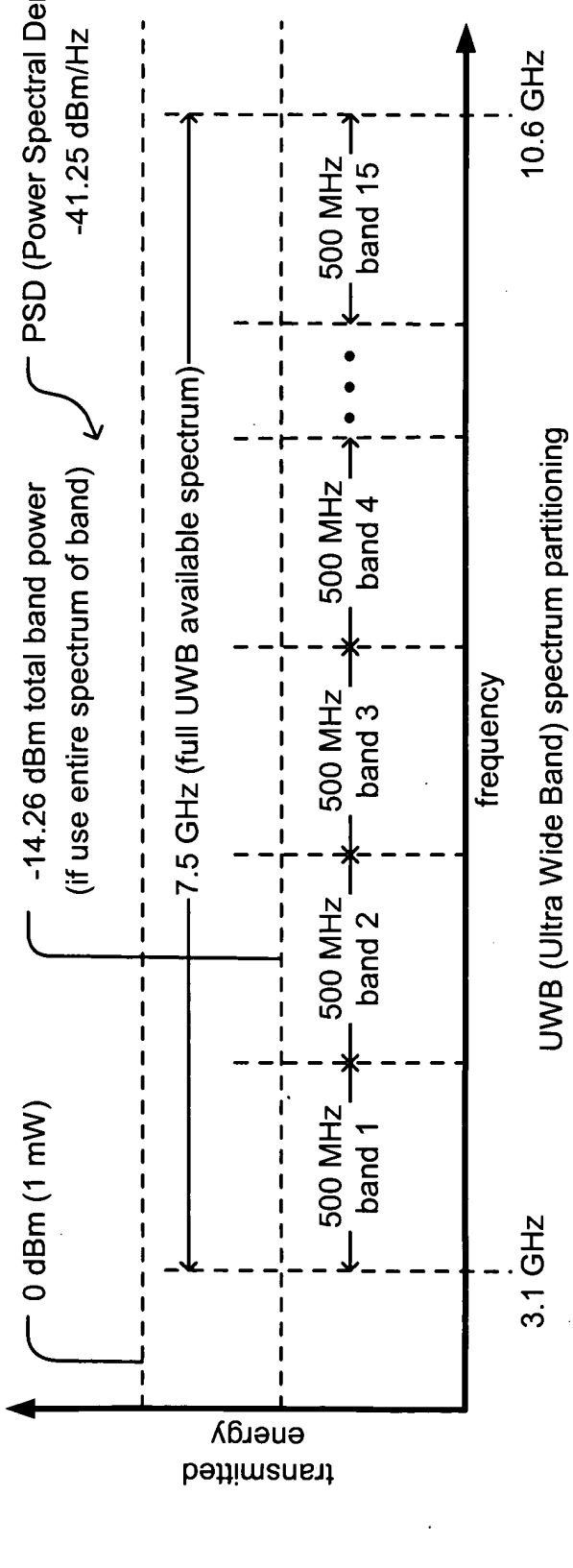
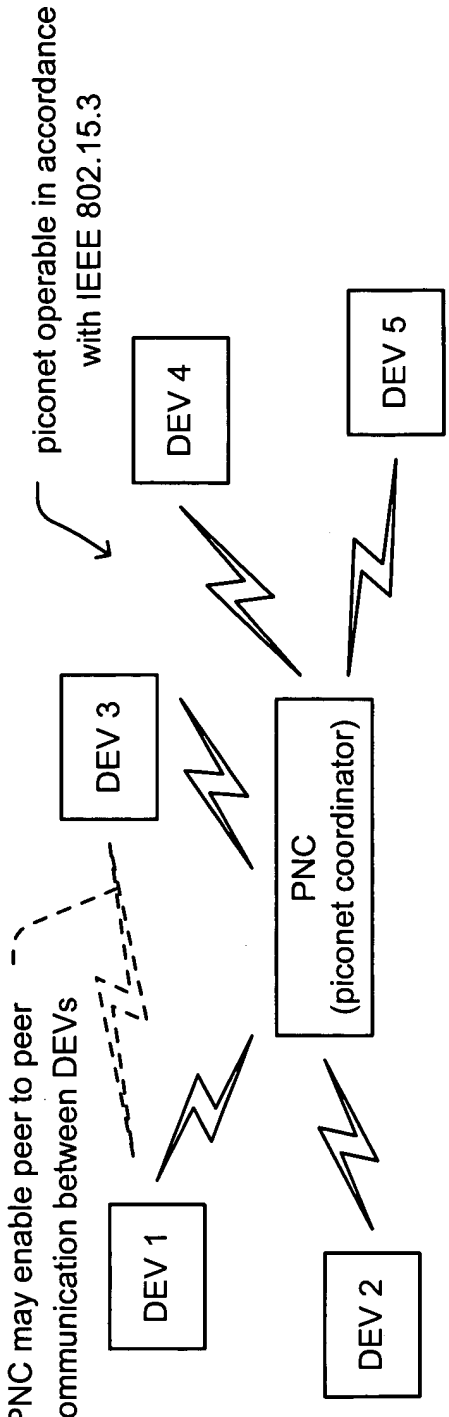
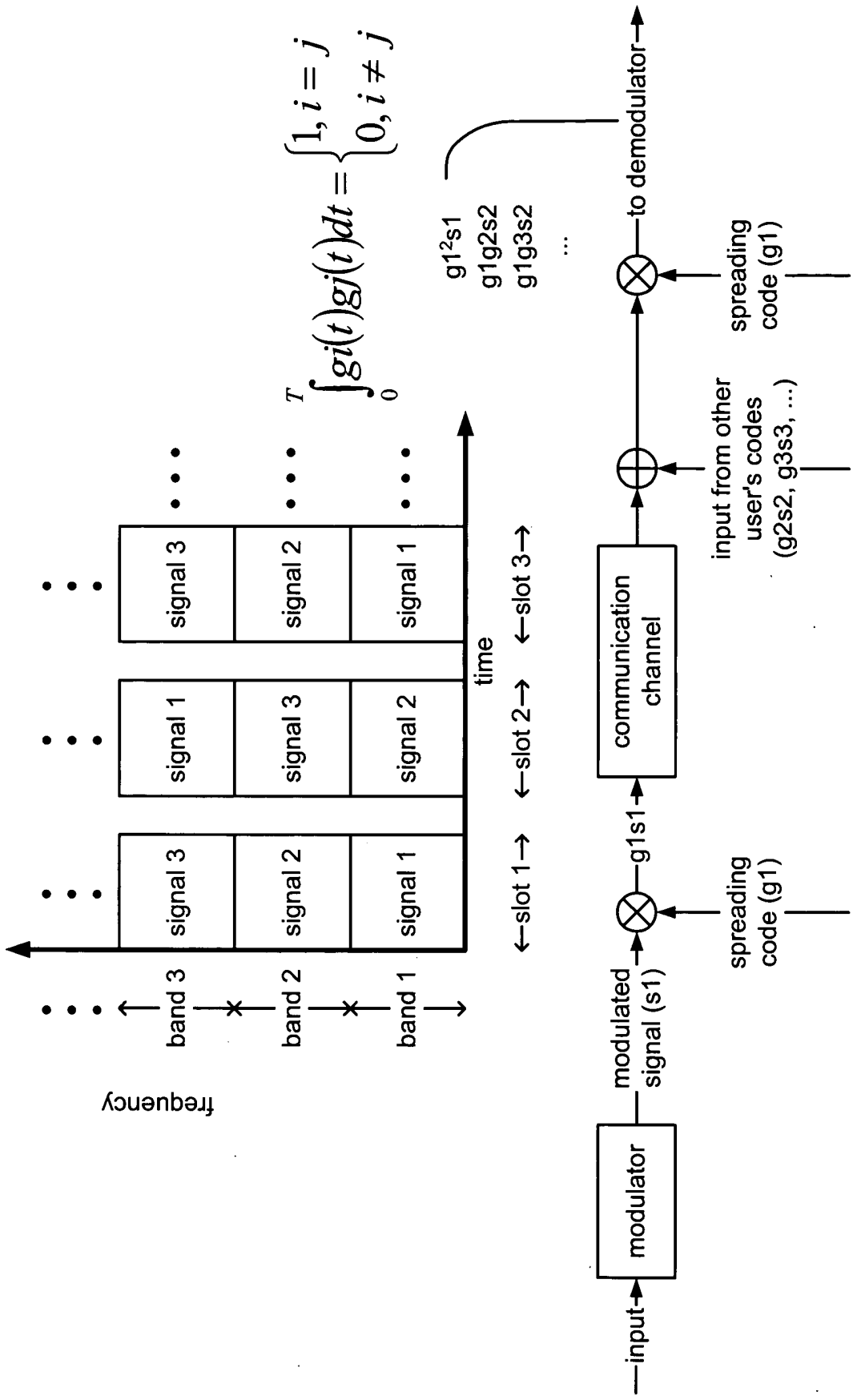



**Fig. 1B**



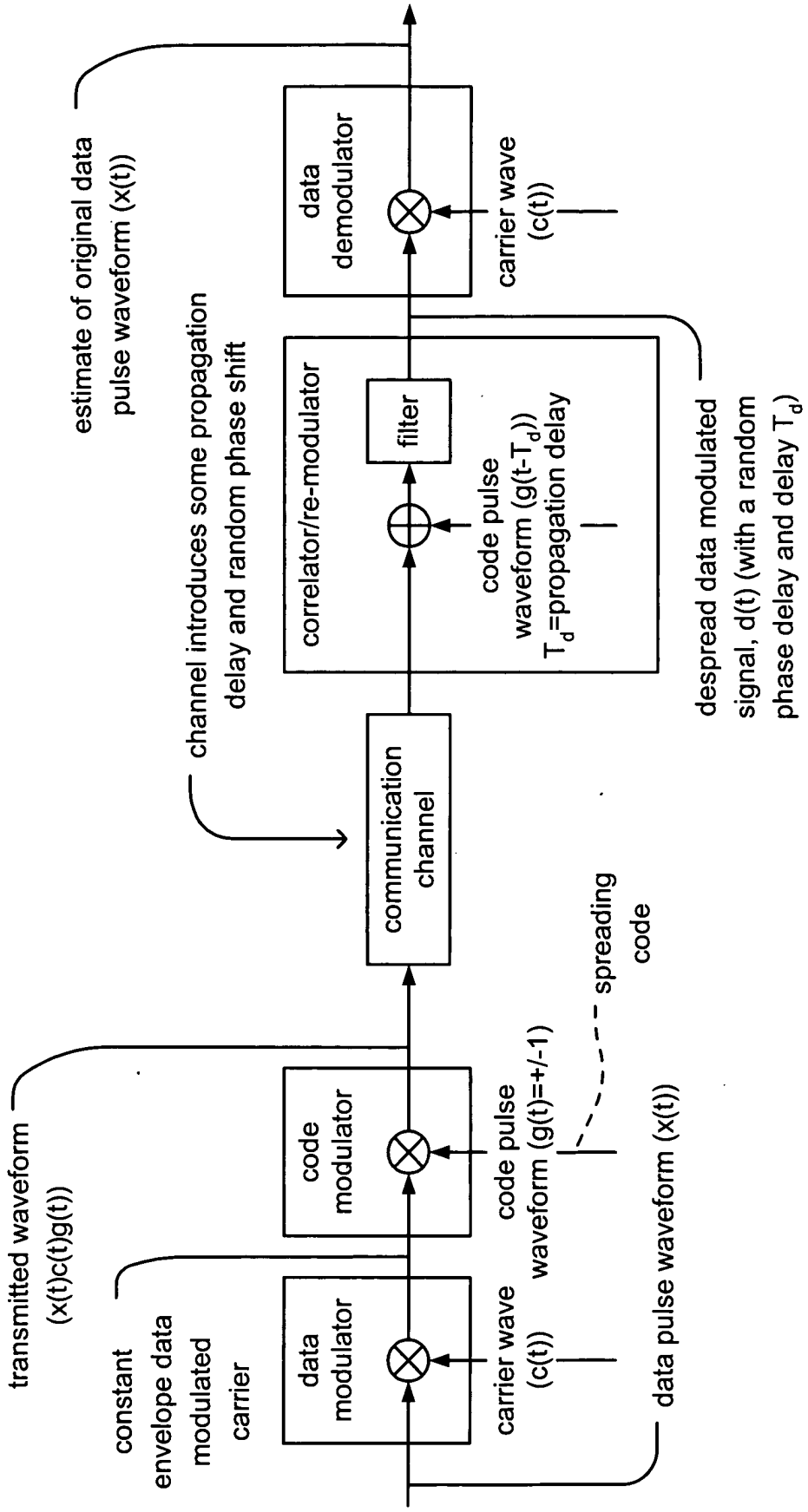

piconet (shown in wireless communication system embodiment)

**Fig. 2**



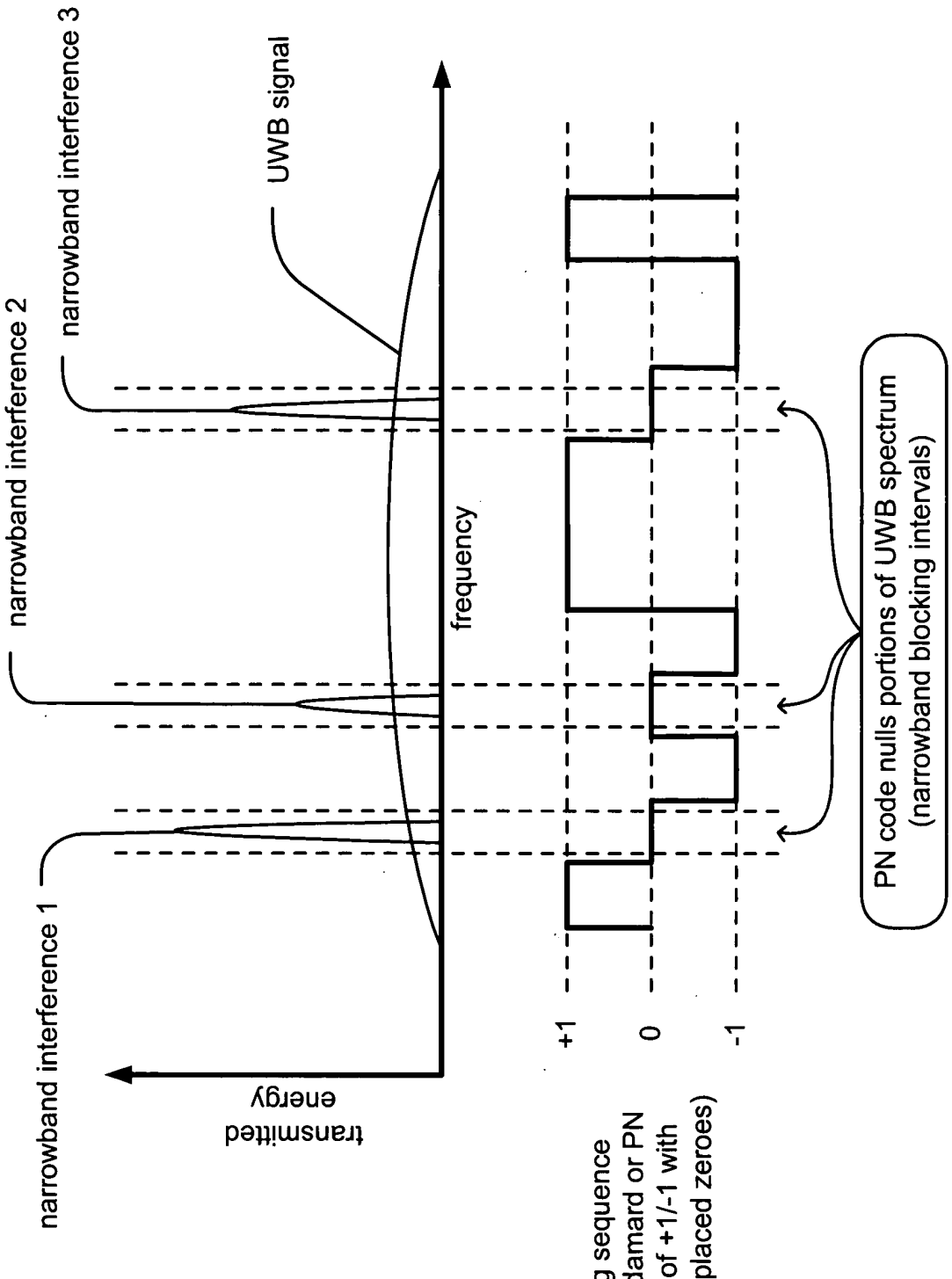

CDMA (Code Division Multiple Access)

**Fig. 3**




DSSS (Direct Sequence Spread Spectrum)

**Fig. 4**




PN (Pseudo Noise) code selectively nulling out narrowband interference within a UWB signal

**Fig. 5**

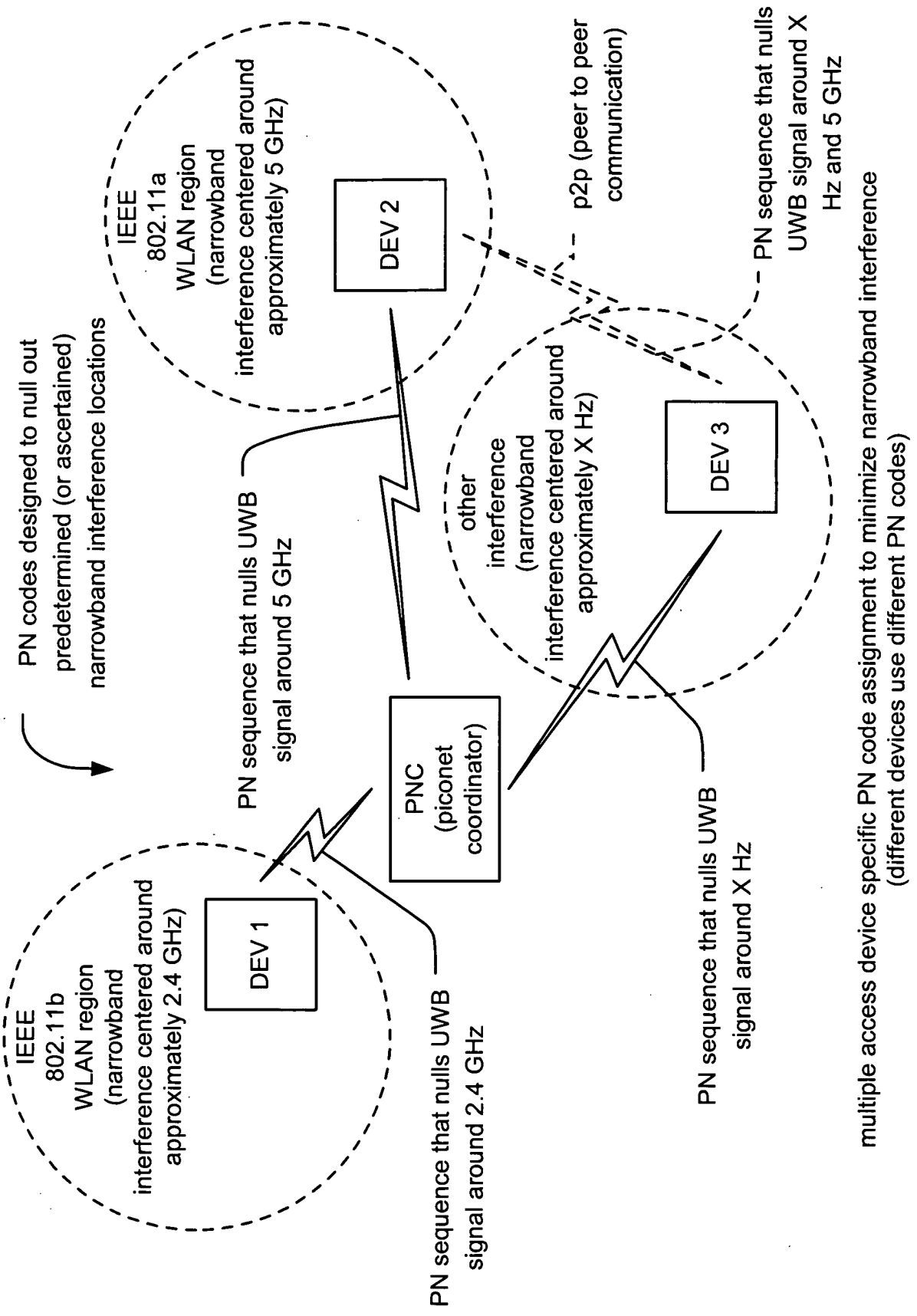

IEEE 802.11b WLAN region (narrowband interference centered around approximately 2.4 GHz)
DEV 1
PN sequence that nulls UWB signal around 2.4 GHz
PNC (piconet coordinator)
PN codes designed to null out predetermined (or ascertained) narrowband interference locations
PN sequence that nulls UWB signal around 5 GHz
IEEE 802.11a WLAN region (narrowband interference centered around approximately 5 GHz)
DEV 2
p2p (peer to peer communication)
other interference (narrowband interference centered around approximately X Hz)
DEV 3
PN sequence that nulls UWB signal around X Hz
PN sequence that nulls UWB signal around X Hz and 5 GHz
multiple access device specific PN code assignment to minimize narrowband interference
(different devices use different PN codes)

**Fig. 6**

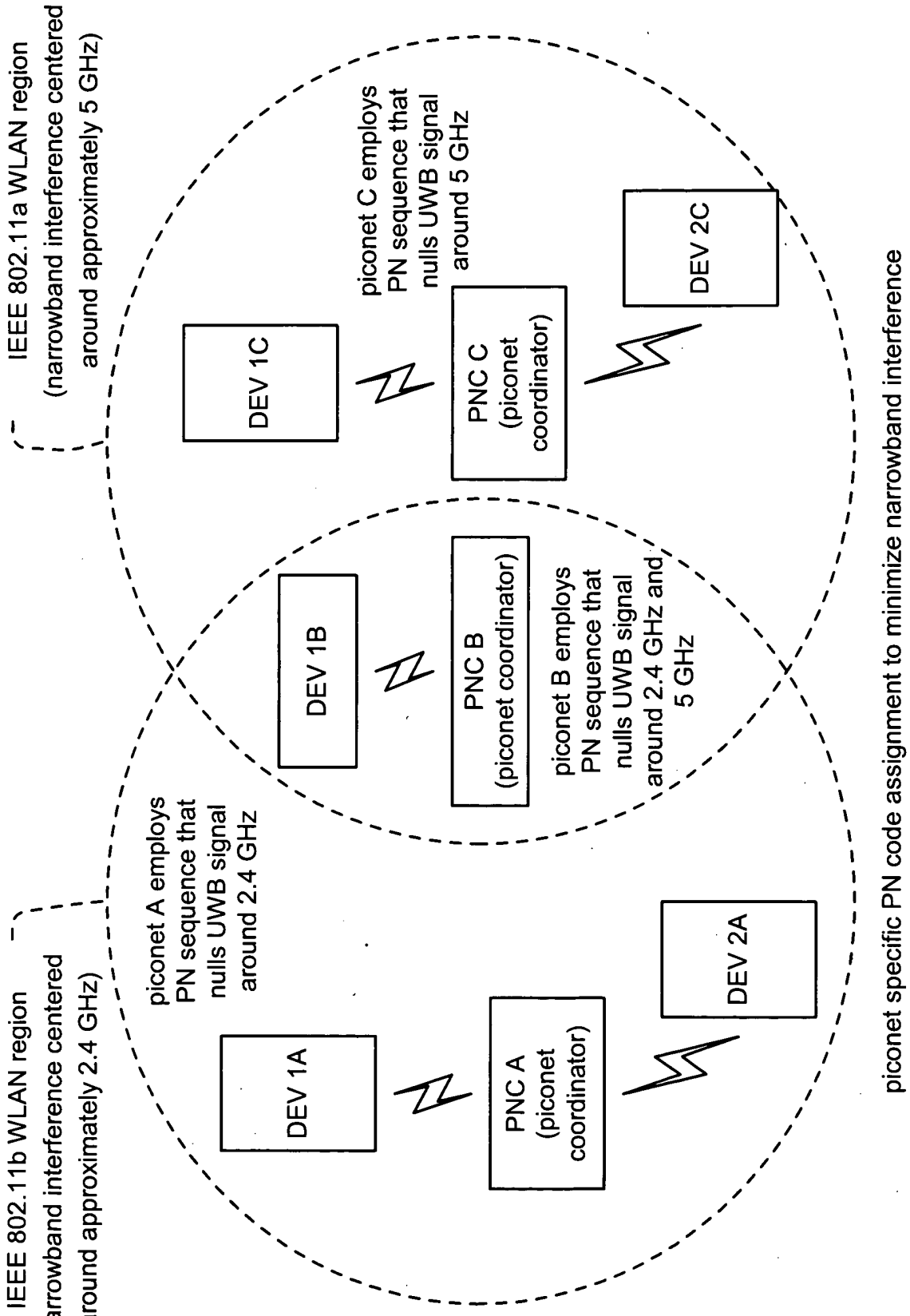
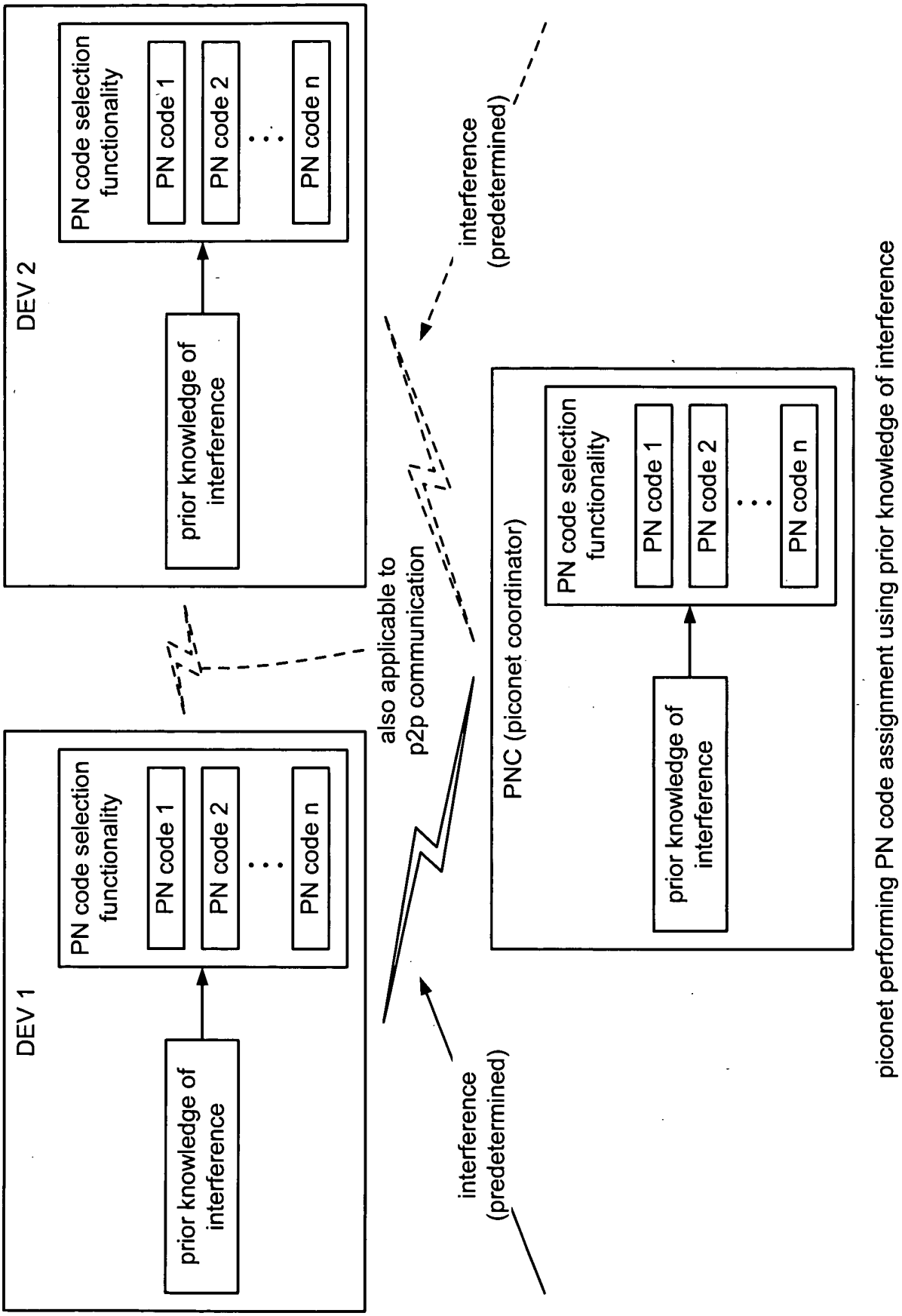
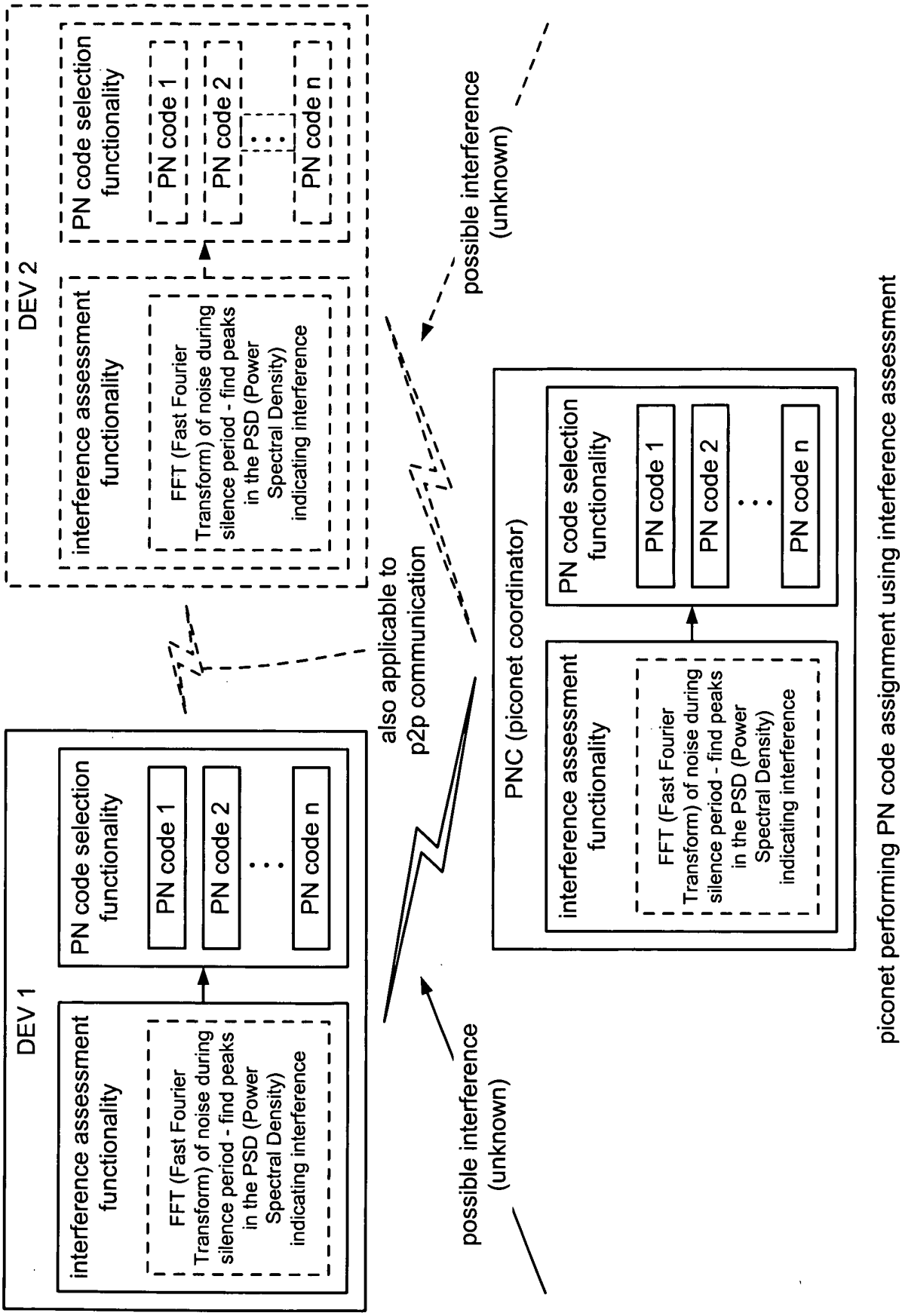

IEEE 802.11a WLAN region
(narrowband interference centered
around approximately 5 GHz)
IEEE 802.11b WLAN region
(narrowband interference centered
around approximately 2.4 GHz)
piconet C employs
PN sequence that
nulls UWB signal
around 5 GHz
piconet A employs
PN sequence that
nulls UWB signal
around 2.4 GHz
piconet B employs
PN sequence that
nulls UWB signal
around 2.4 GHz and
5 GHz
DEV 1A
DEV 1B
DEV 1C
DEV 2A
DEV 2C
PNC A
(piconet
coordinator)
PNC B
(piconet coordinator)
PNC C
(piconet
coordinator)
piconet specific PN code assignment to minimize narrowband interference
(different piconets use different PN codes)

**Fig. 7**



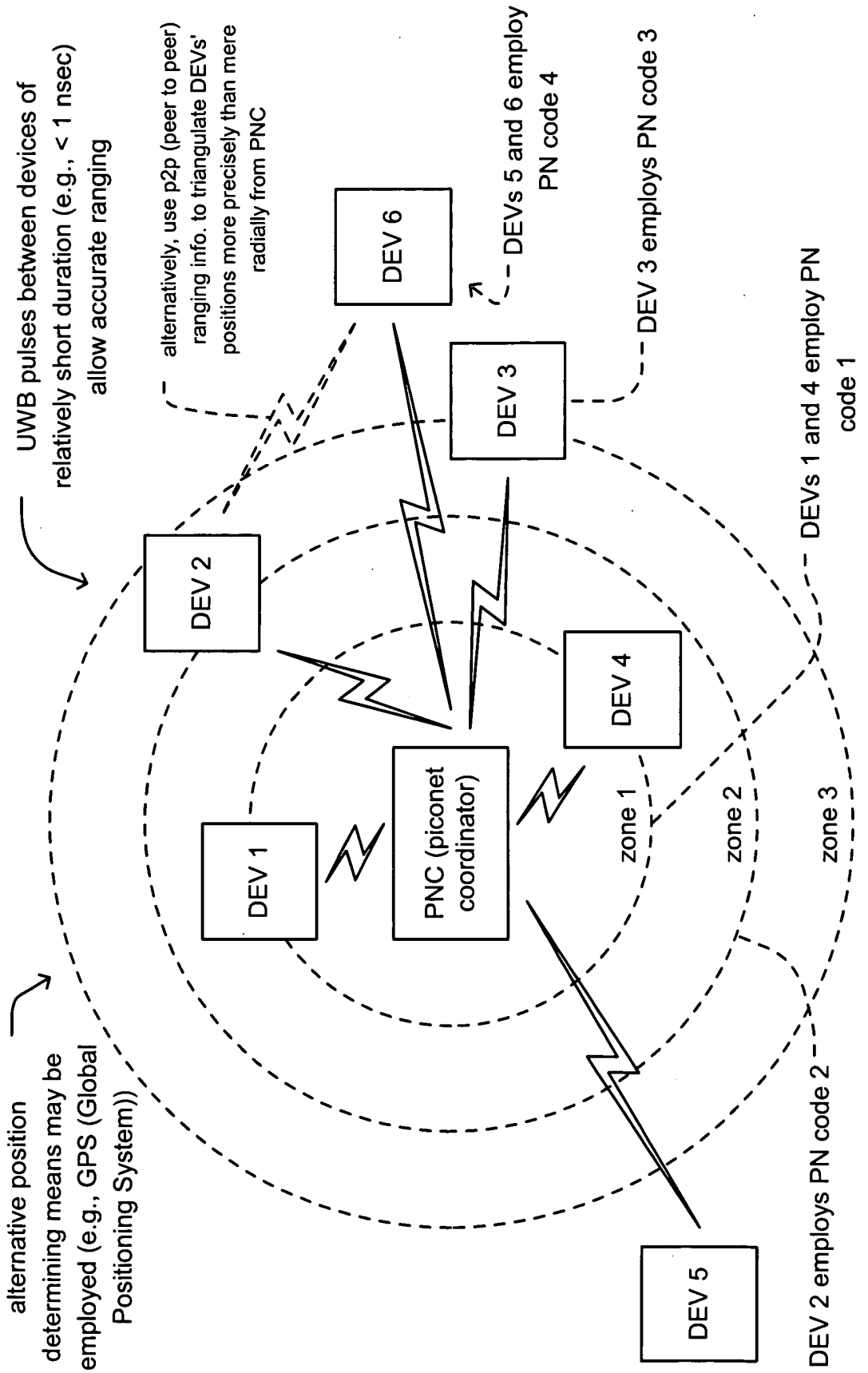

piconet performing PN code assignment using prior knowledge of interference

**Fig. 8**



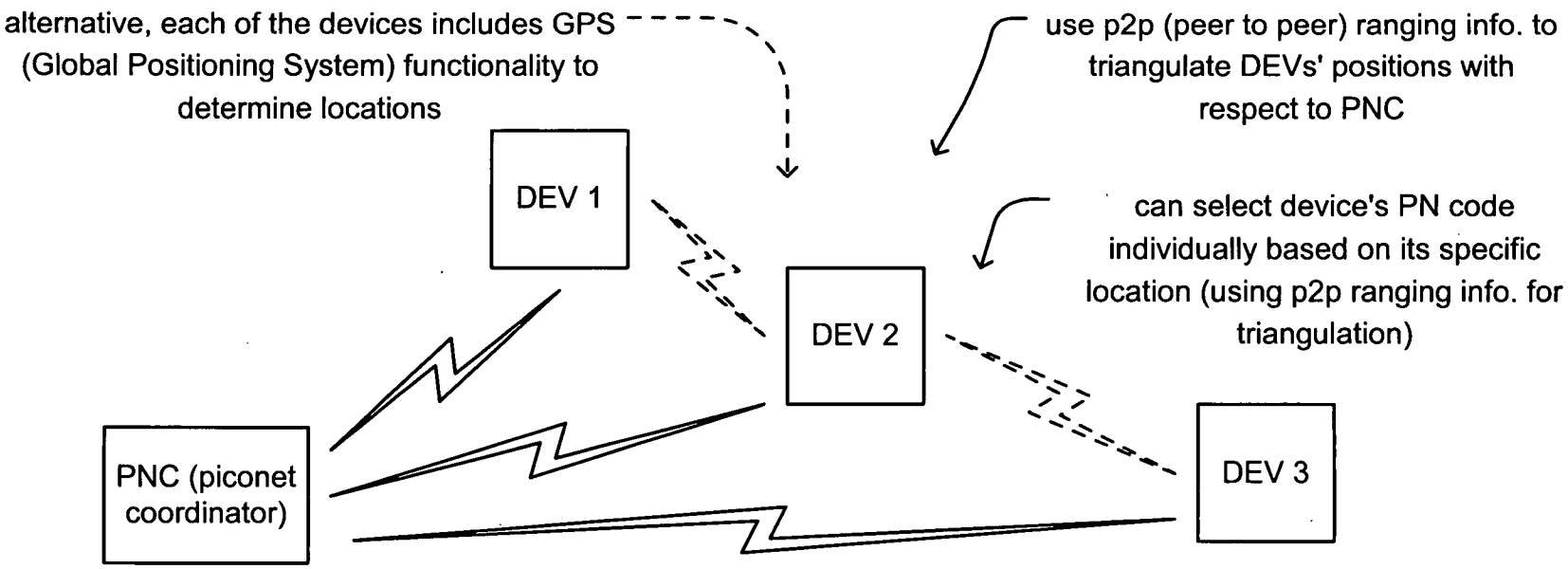

piconet performing PN code assignment using interference assessment

**Fig. 9**



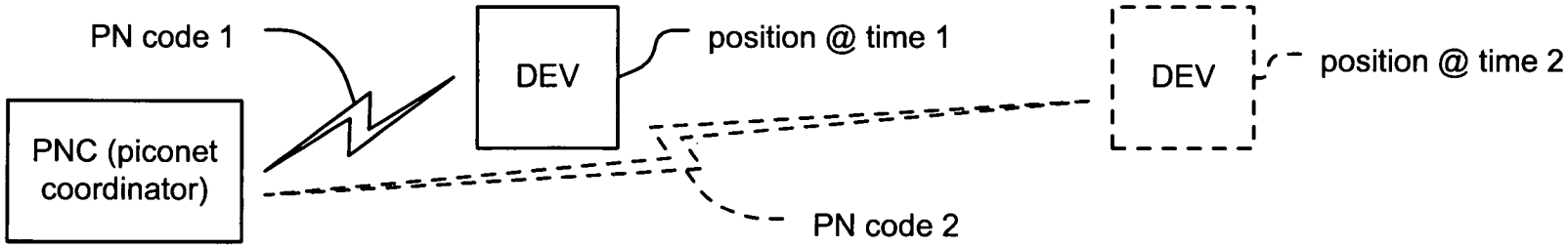

position determination of devices in a piconet (shown in a radial embodiment)

**Fig. 10**




position determination of devices in a piconet (shown using triangulation)

**Fig. 11A**




position determination of devices in a piconet (shown accommodating changes in positions)

**Fig. 11B**

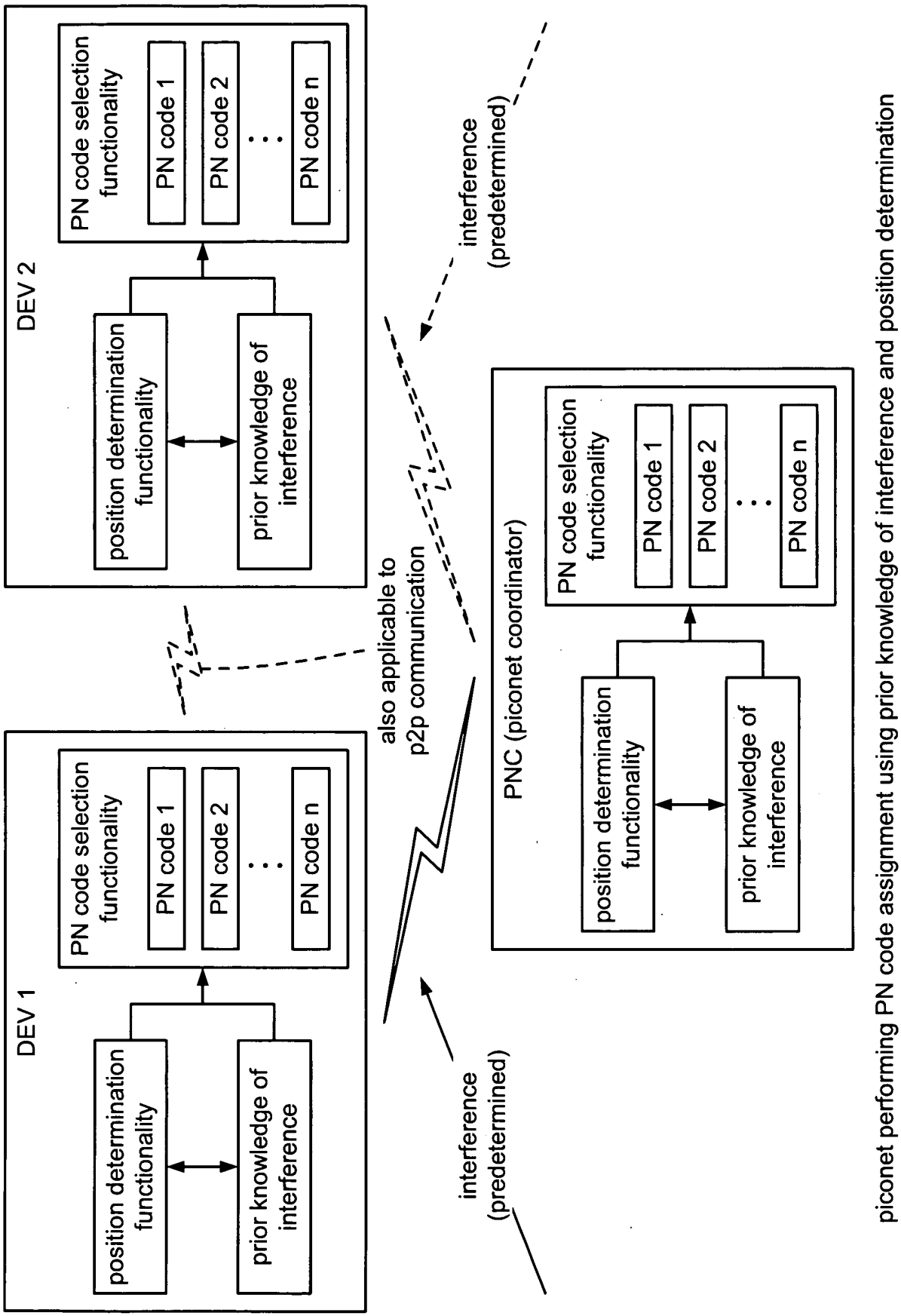
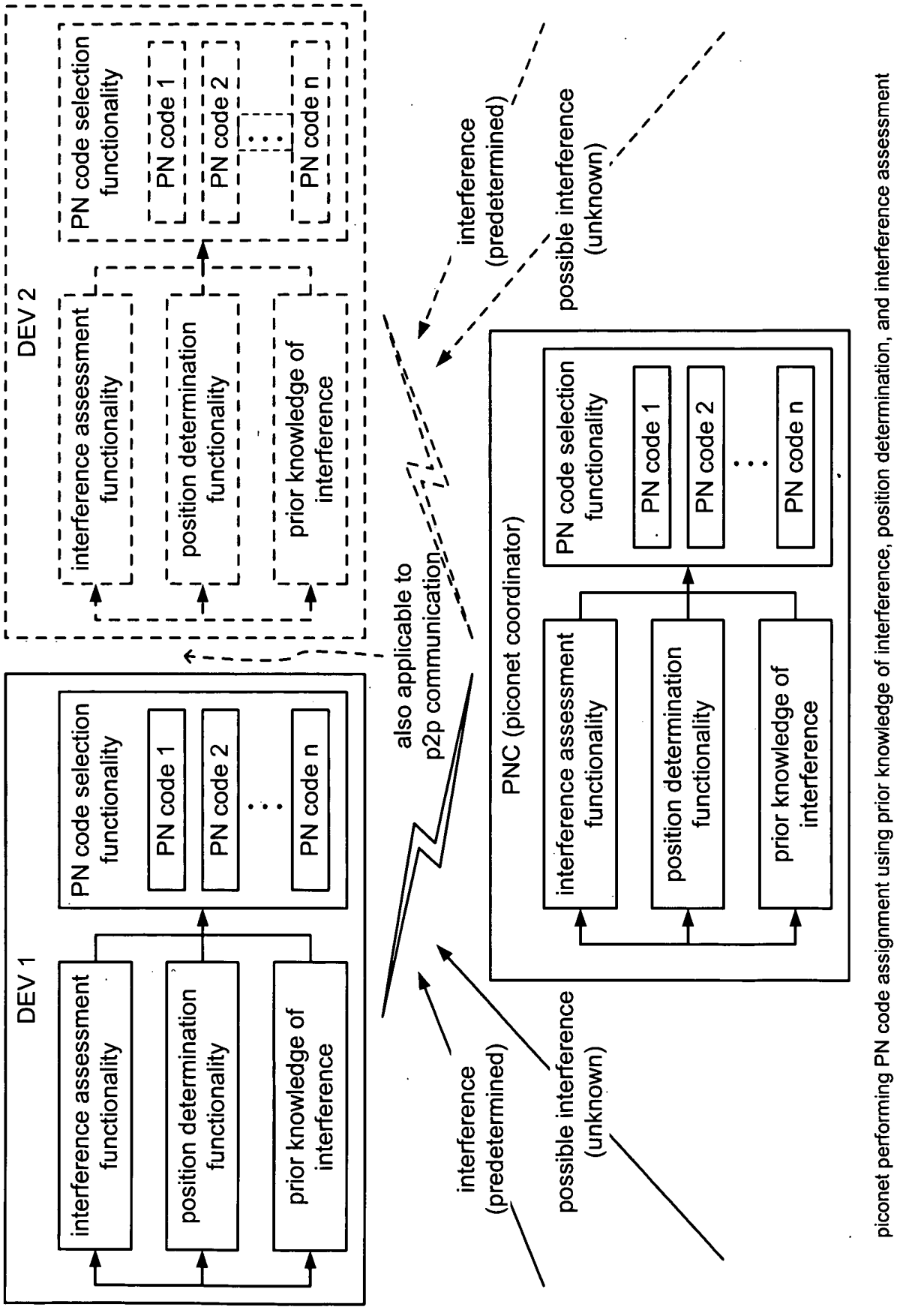


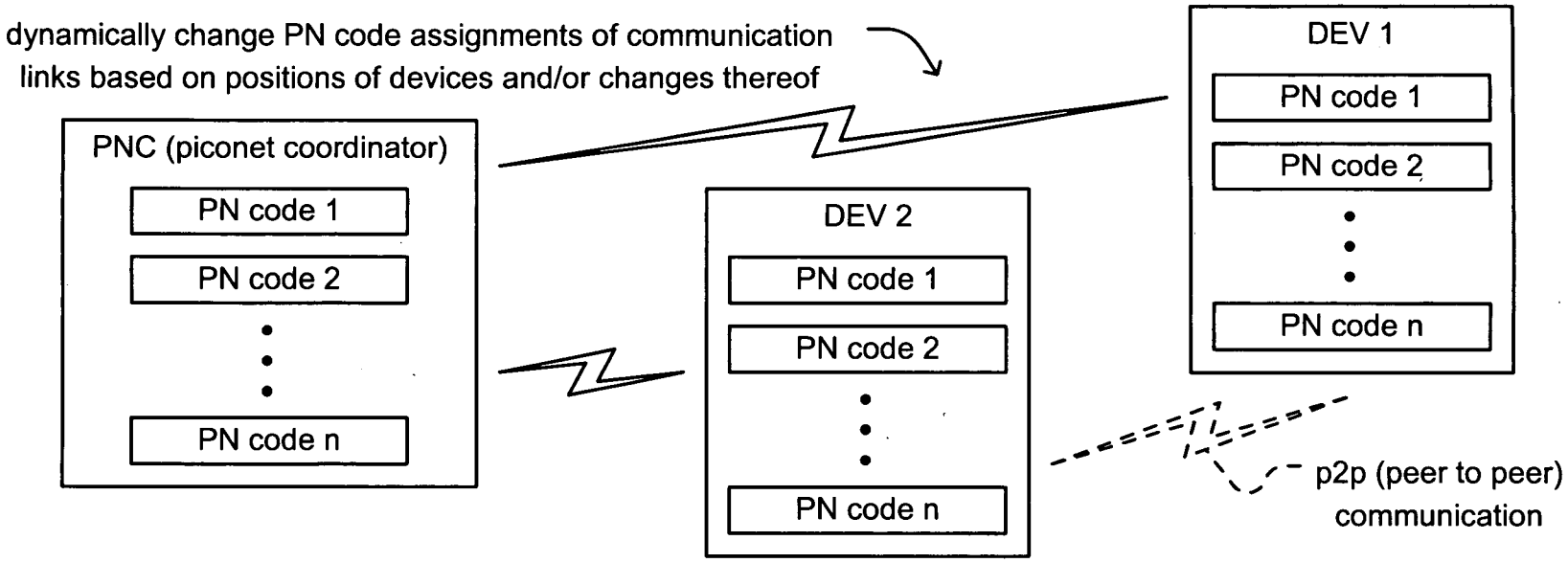

**Fig. 12**

piconet performing PN code assignment using prior knowledge of interference and position determination



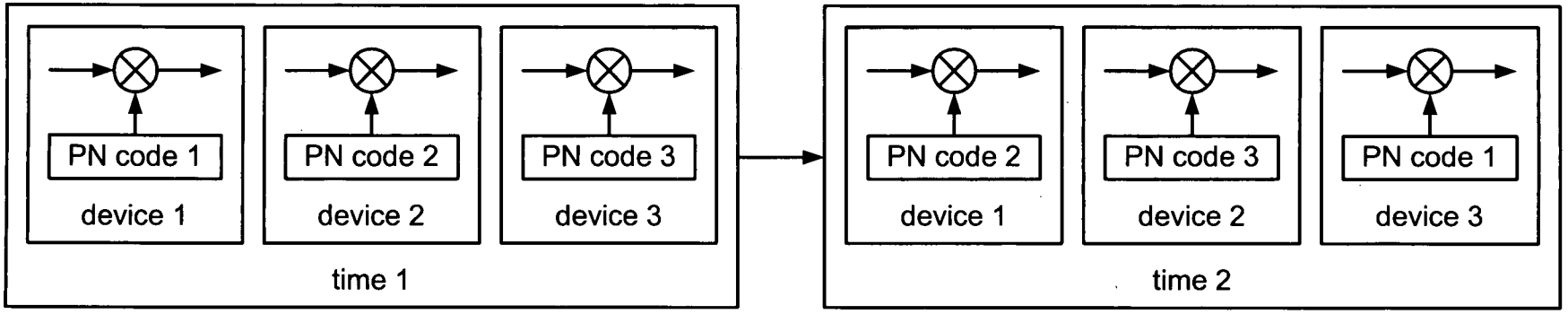

piconet performing PN code assignment using prior knowledge of interference, position determination, and interference assessment

**Fig. 13**



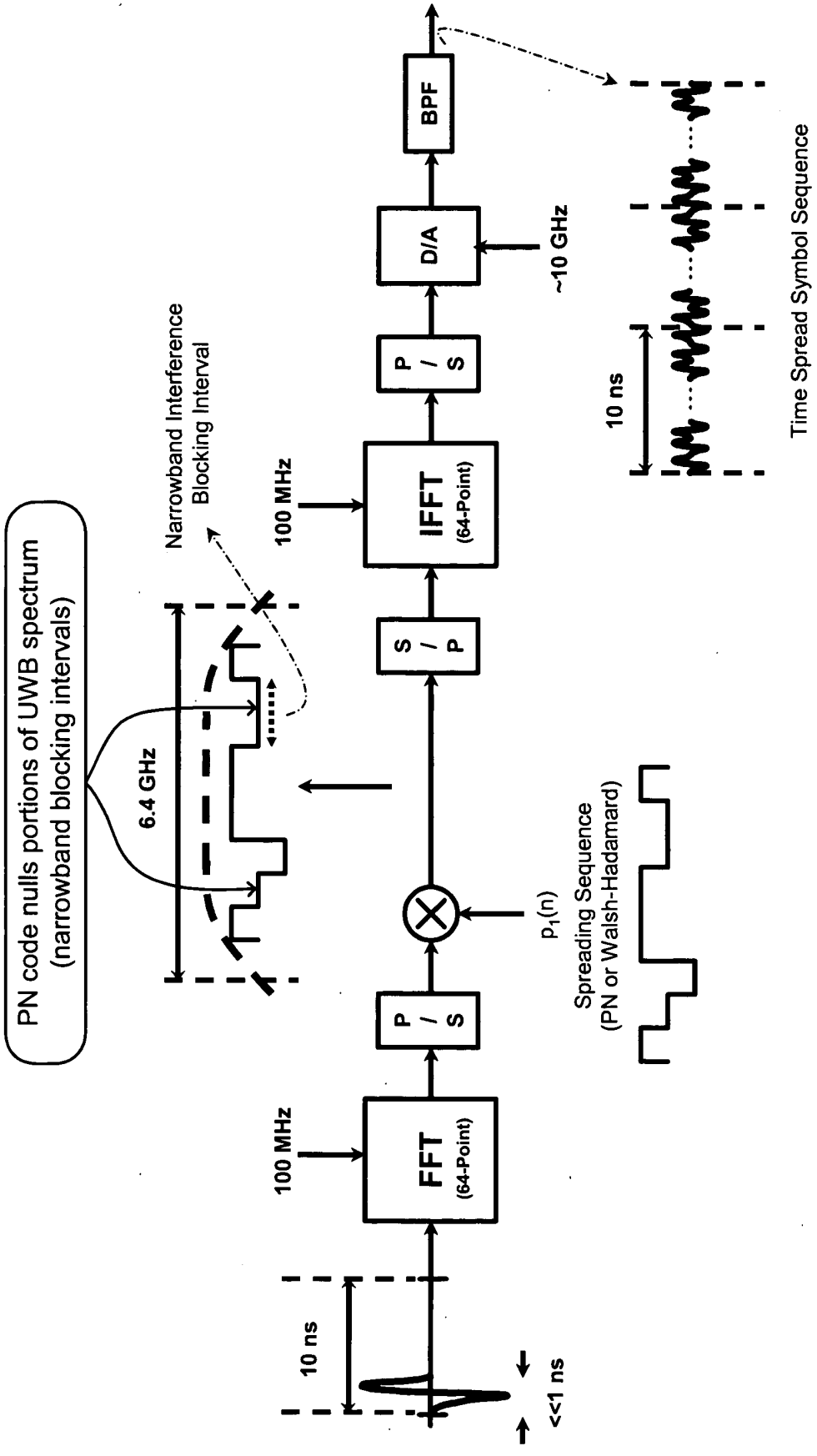

dynamic re-assignment of PN codes within piconet (using finite set of PN codes stored within devices)

**Fig. 14A**



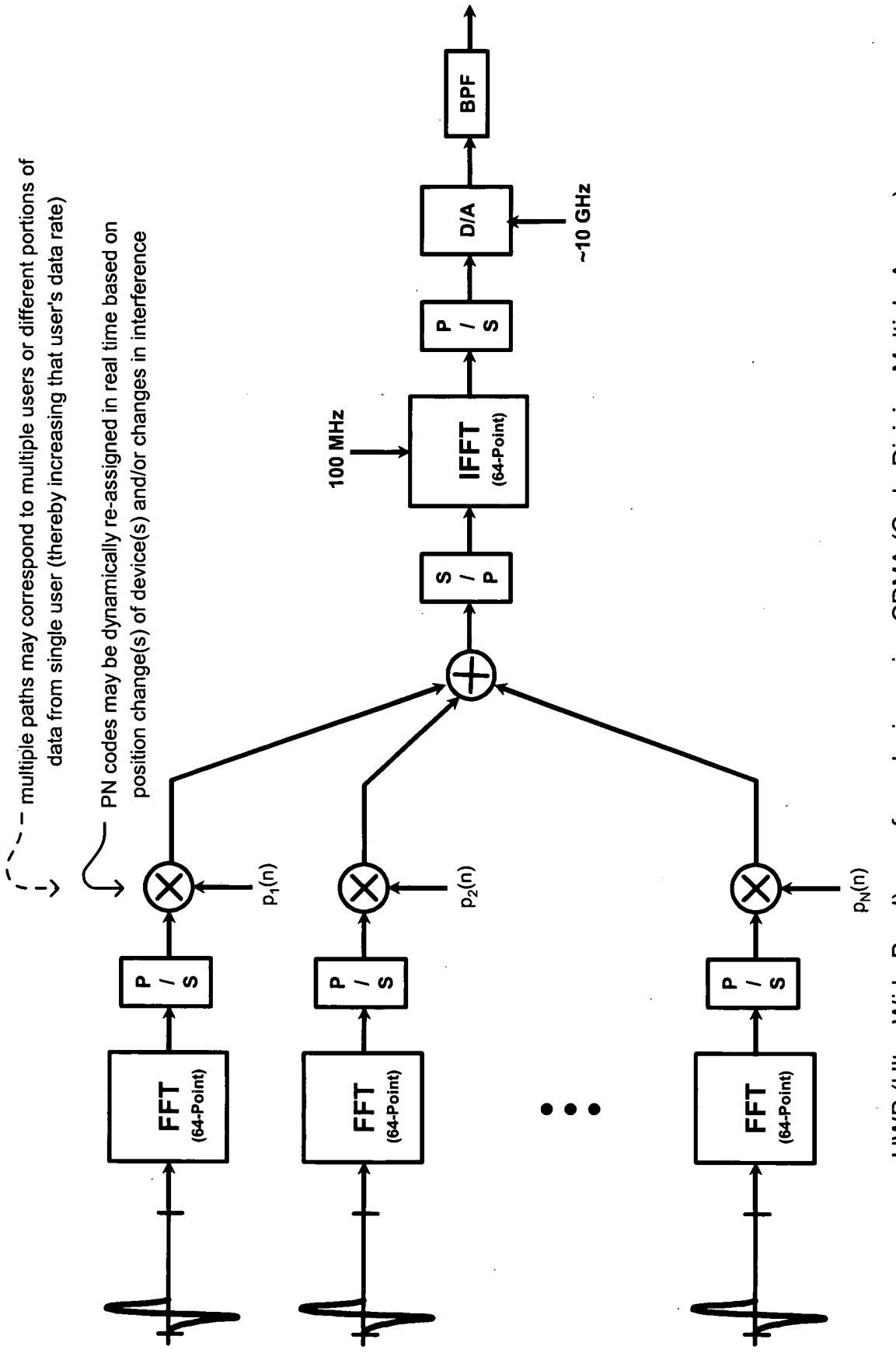

dynamic re-assignment of PN codes for multiple devices as a function of time

**Fig. 14B**



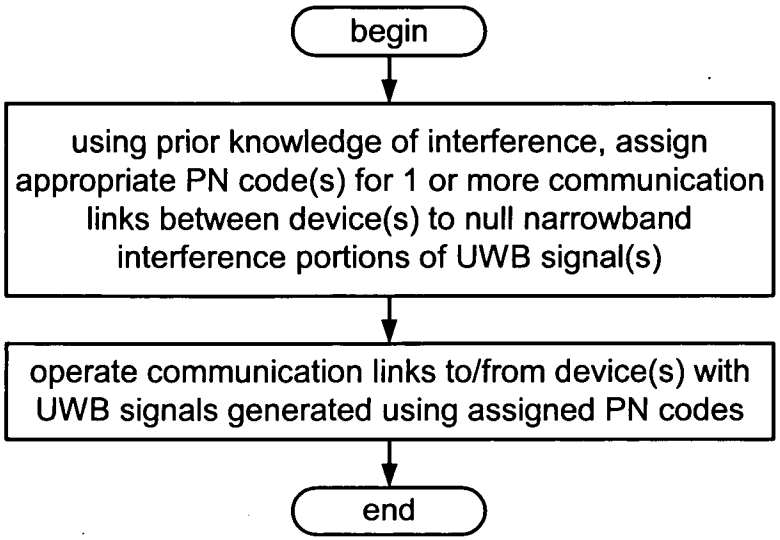

UWB (Ultra Wide Band) waveform design using DSSS (Direct Sequence Spread Spectrum)

**Fig. 15**



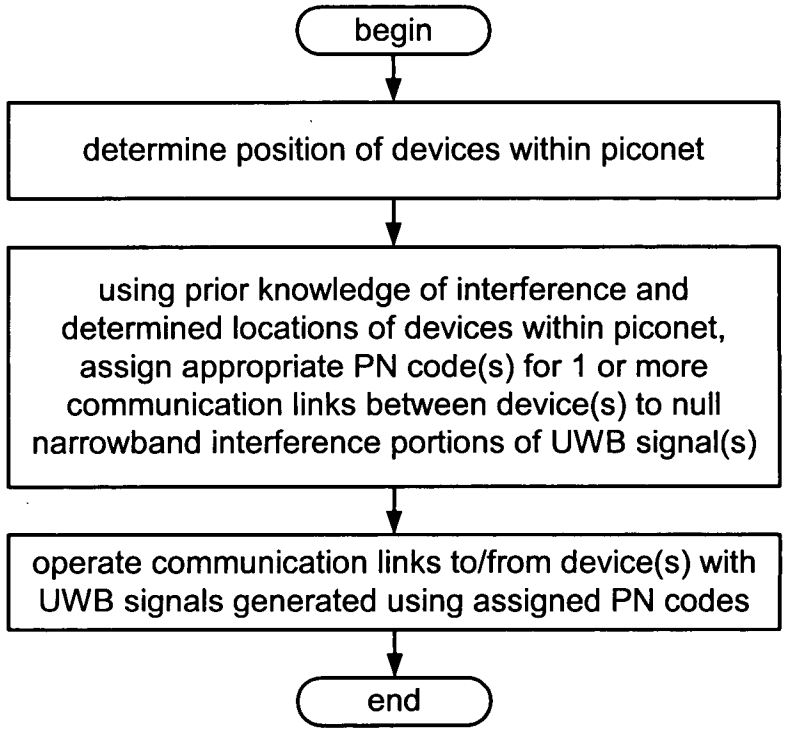

UWB (Ultra Wide Band) waveform design using CDMA (Code Division Multiple Access)

**Fig. 16**



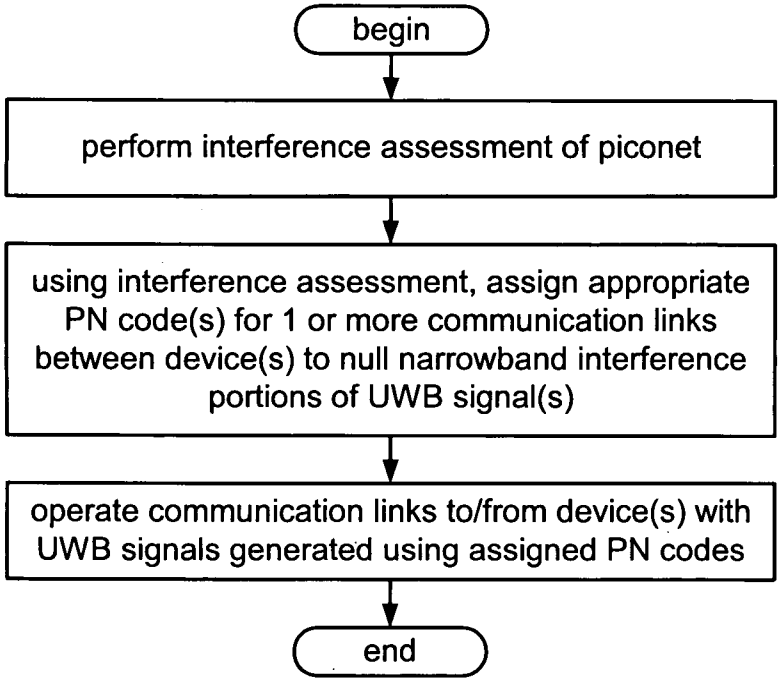

piconet operating method

**Fig. 17A**



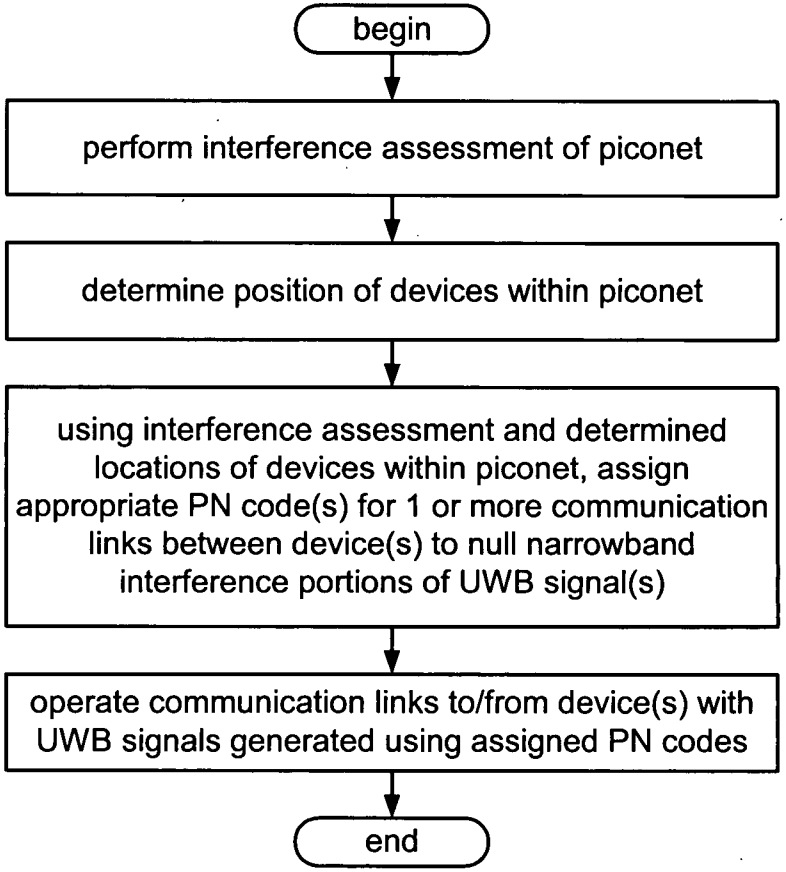

piconet operating method

**Fig. 17B**



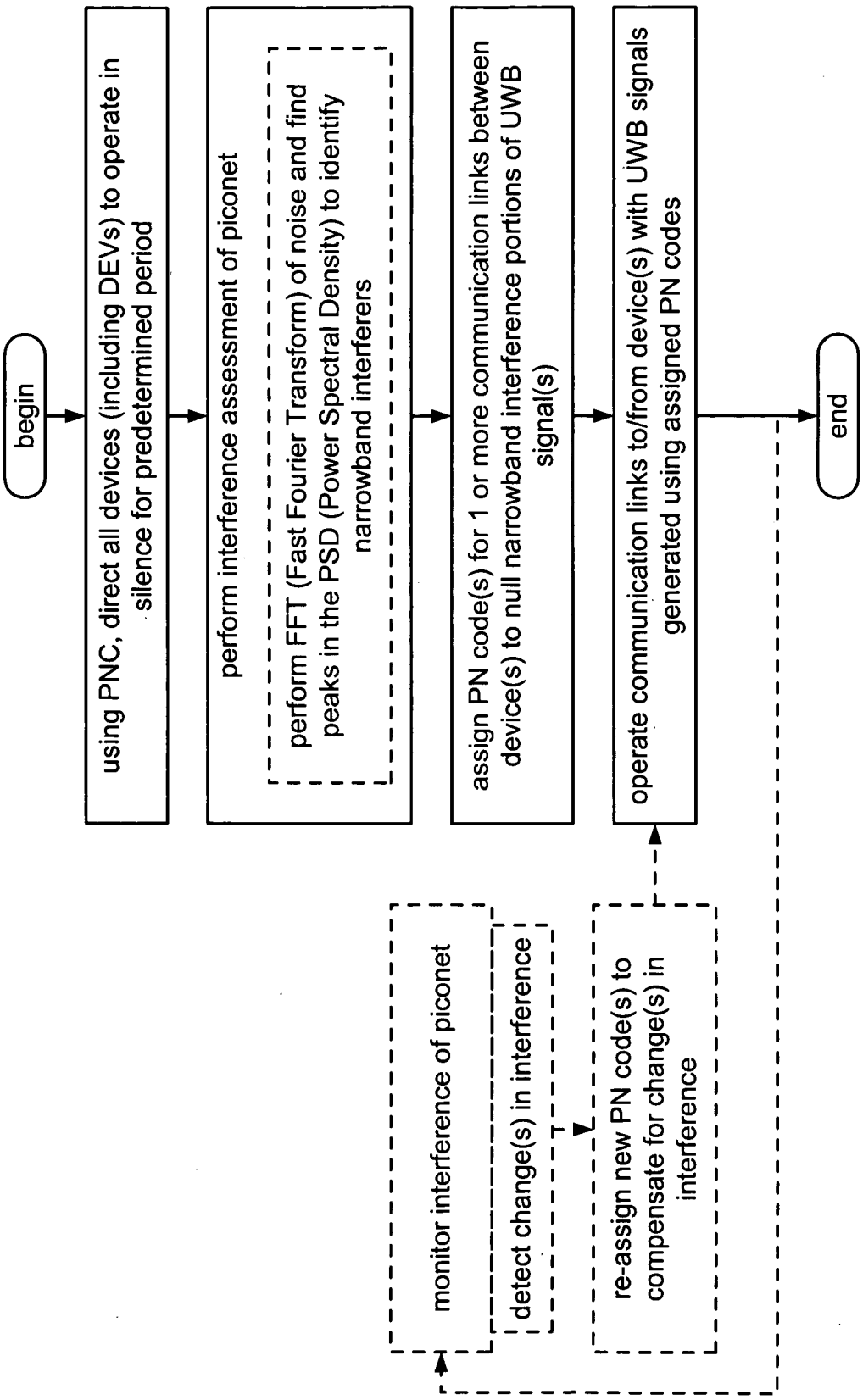

piconet operating method

**Fig. 18A**



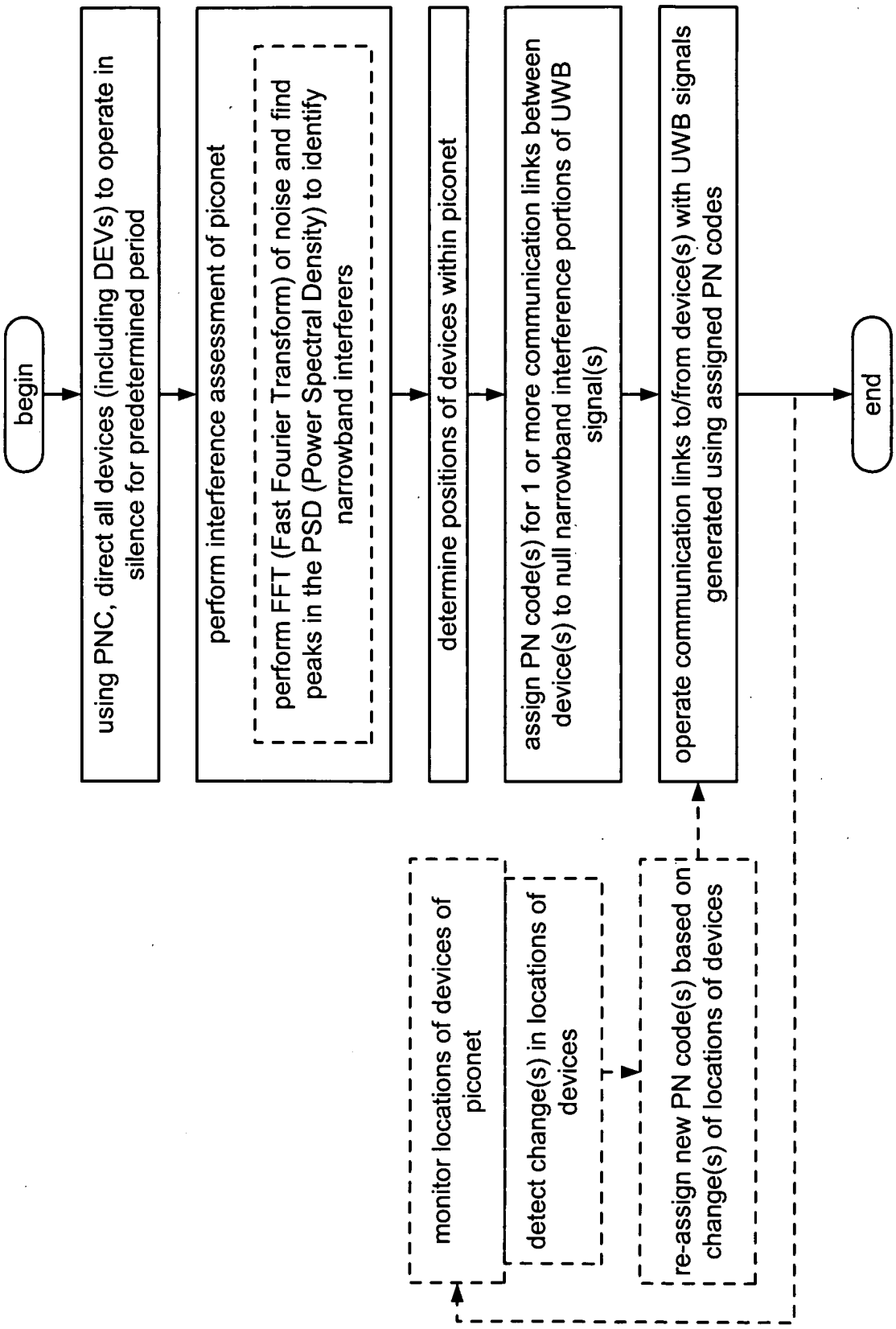

piconet operating method

**Fig. 18B**




piconet operating method

**Fig. 19**




piconet operating method

**Fig. 20**